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Analysis of the ionospheric parameter dynamics during increased geomagnetic activity and strong earthquakes in Kamchatka

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This paper presents the results of an analysis of the foF2 variations (Paratunka station, IKIR FEB RAS, Kamchatka) during magnetic storms in 2023-2024 and seismic events in Kamchatka with magnitude M > 5. The foF2 data were analyzed using the generalized multicomponent model of ionospheric parameters (GMCM) developed by the authors [1]. The study considered magnetic storms of different physical nature and power. The parameters of the interplanetary medium and magnetosphere were used in the analysis (data resource: https://omniweb.gsfc.nasa.gov/). Anomalous changes in the foF2 variations detected against the background of increased geomagnetic activity were compared, in terms of intensity, with sudden ionospheric disturbances during calm geomagnetic conditions and those observed during earthquakes in Kamchatka. The study indicates a strong dependence between the dynamics of ionospheric parameters and the state of the near-Earth environment and magnetosphere. During increased seismic activity in Kamchatka, ionospheric anomalies were of lower intensity and duration. The work was supported by IKIR FEB RAS State Task (subject registration No. 124012300245-2).

References

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